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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,304	08/03/2006	Motoyoshi Murakami	2006_1169A	6882

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EXAMINER	
CHAU, LISA N	

ART UNIT	PAPER NUMBER
1794	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,304	MURAKAMI ET AL.	
	Examiner	Art Unit	
	Lisa Chau	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *46-90* is/are pending in the application.

4a) Of the above claim(s) *85-88 and 90* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *46-84 and 89* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/3/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election of Invention I, Claims 46-84 and 89 in the reply filed on 7/10/09 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 46-49, 51-55, 59-77, 79-84, and 89 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001256686 ("Takahashi et al.") provided in the IDS. The Examiner notes that JP '686 is the English language equivalent of US Pub. No. 20040257920 and all citations will refer to US '920. See provided Derwent Abstract translation illustrating the equivalency of these two references.

With regards to Claims 46, 71, 77, and 89, Takahashi et al. teaches a magneto-optical recording medium comprising a pit-shaped patterned disk substrate (71), a perpendicular anisotropic magnetic recording film (73) of TbFeCo, a protective layer comprising a plurality of thin films (75and 76), and a plurality of lubricating layers (77 and 78) (Fig. 8, [0072], and [0123]).

Takahashi et al. does not explicitly teach the protective layers (75 and 76) having a lower thermal conductivity than the recording film (73). However, it would have been

obvious to one of ordinary skill in the art at the time of the invention was made that the protective layers (75 and 76) have a lower thermal conductivity than the recording layer (73) because it is obvious that using a laser beam to record information on the recording layer (73) would have a thermal conductivity higher in order to record data successfully [0002]. In addition, Takahashi et al.'s recording layer (73) and protective layers (75 and 76) have similar materials as applicants and therefore would be expected to have the same thermal conductivity property as claimed.

With regards to Claims 47-49 and 51, Takahashi et al. teaches the protective layer comprising a plurality of thin films (75 and 76) with different thermal conductivities of $1x10^6$ erg/(s·K·cm) or less (Fig. 8 and [0051).

With regards to Claims 52-55 and 59-62, Takahashi et al. teaches the protective layers having the materials limitations as claimed ([0052], [0053], [0057], and [0123]).

With regards to Claims 63-67, Takahashi et al. teaches plurality of lubricant layers (77 and 78) meeting the material limitations as claimed by Applicants (Fig. 8, [0069], and [0123]). The plurality of lubricating layers each have a different thermal conductivity because each layer is made with different materials.

With regards to Claims 68-70, Takahashi et al. teaches the combined thickness of the lubricating and protective layers, the thickness of the lubricating layer, and the thickness of the protective layer as claimed by Applicants ([0012], [0051], [0054], and [0069]).

With regards to Claims 72-74, Takahashi et al. teaches the recording film comprising a plurality of magnetic layers of a recording layer (63), an intermediate layer

(64), and a reproduction layer (65) (Fig. 7 and [0119]). It is intrinsic that the recording domain formed on the recording layer in the recording film is transferred to the reproduction layer, and recorded information is reproduced by domain wall displacement in the reproduction layer.

With regards to Claims 75 and 76, Takahashi et al. teaches the recording layers include TbFeCo with different compositional ratio [0123].

With regards to Claims 79-82 and 84, Takahashi et al. teaches a metal layer provided between the disk substrate and the recording film. Takahashi et al. further teaches a dielectric layer is provided between the disk substrate and the metal layer or the between the metal layer and recording film ([0042] and [0064]).

With regards to the limitation of the metal layer or the dielectric layer having an etched surface, product-by-process claims are limited by and defined by the process and the determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. "If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." (In re Thorpe, 227 USPQ 964,966). Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious different between the claimed product and the prior art product (In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983),

MPEP 2113). In the instant case, Takahashi et al. has the same layers as Applicants and would intrinsically have an etched surface.

With regards to Claim 83, Takahashi et al. teaches the Ra of the substrate is 0.5 nm [0019], but is silent about the metal layer or the dielectric layer having a surface roughness Ra of at least 0.5 nm.

However, it is obvious to one of ordinary skill in the art at the time of the invention was made that any subsequent layers over the substrate has an Ra of at least 0.5 nm in order to obtain a smooth magneto-optical magnetic recording medium due to smoothness of the layers ([0030] and [0044]).

4. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001256686 ("Takahashi et al.") as applied to claim 46 above, and further in view of US Pub. No. 20030099903 ("Liang et al.").

With regards to Claim 50, Takahashi et al. fails to teach the thermal conductivity of the protective layer (75) on the recording film side is higher than the thermal conductivity of the protective layer (76) on the lubricating layer side.

However, Liang et al. teaches an optical information recording medium, wherein the thermal conductivity of protective layer (3) on the recording layer side is higher than the thermal conductivity of the other protective layer (4) [0020]. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have Takahashi et al.'s protective layers have the thermal conductivity property taught in Liang et al. in order to achieve a rewriteable optical information recording medium with high rewritability [0005].

5. Claims 56-58 and 78 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2001256686 ("Takahashi et al.") as applied to claim 46 above, and further in view of US Patent No. 6051298 ("Ko et al.").

With regards to Claims 56-58 and 78, Takahashi et al. teaches a pit-shaped pattern on the substrate and the protective layer comprising a ceramic material [0123] as set forth above. Takahashi et al. does not explicitly teach using Teflon®.

However, Ko et al. teaches using tetrafluoroethylene (Teflon®) in its protective film (Col. 6, Lines 8-12). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have Takahashi et al.'s protective layer made of tetrafluoroethylene as demonstrated by Ko et al. in order to protect its medium from scratches and contamination by water or oil (Col. 6, Lines 18-21).

In addition, Ko et al. teaches a pit-shaped pattern is formed on the disk substrate according to the pattern of the recording domain formed in the recording layer, wherein the pit-shaped pattern is smaller than the smallest pattern of the recording domain formed in the recording layer (Fig. 3 and Col. 1, Lines 28-32). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have Takahashi et al. have the same pit-shaped pattern as Ko et al. to achieve a high density optical disc for information recording and retrieval when using a laser beam to read data from the presence or absence of pits (Col. 1, Lines 12-15).

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6366541 ("Ohnuki et al.")

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Chau whose telephone number is (571)270-5496. The examiner can normally be reached on Monday-Friday 8:30 AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on (571) 272 - 1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Holly Rickman/
Primary Examiner, Art Unit 1794

/LC/
Lisa Chau